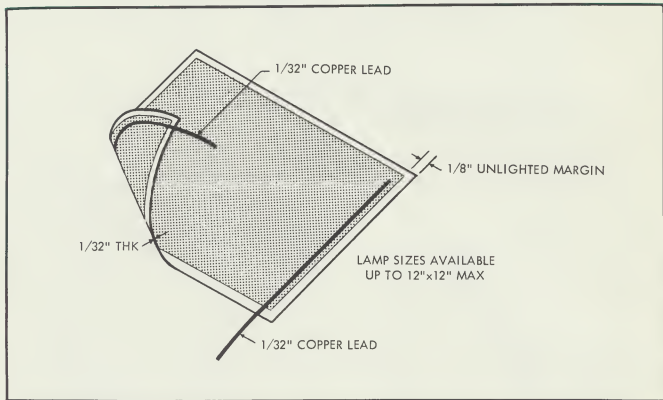


PPF PANELESCENT® PLASTIC LAMP



GENERAL

The Panelescent® lamp is a unique light source that has the electrical characteristics of a condenser; in essence, it is a luminous condenser. This unusual process of producing light is called electroluminescence, a phenomenon wherein phosphors are excited to emit light by the direct application of a varying electric field.

Physically, a plastic Panelescent® lamp is similar to a capacitor in which the phosphor-bearing layer forms the dielectric. One side of the lamp consists of an electrically conducting transparent plastic electrode, while the other electrode is of a flexible metal. When an a.c. voltage is applied, the phosphor in the dielectric is excited and emits light. The amount of light emitted depends upon the applied voltage, its frequency, the thickness of the phosphor

layer, and the phosphor used. This complete electrical circuit is then sandwiched in a reasonably flexible plastic to protect it from moisture and short circuiting.

AVAILABLE PLASTIC LAMP SIZES

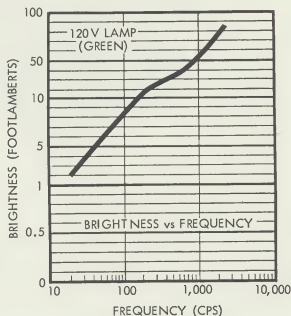
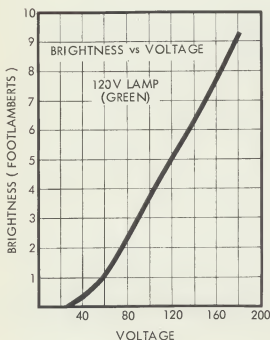
Plastic Panelescent® lamps are available in area sizes of less than 1 square inch up to 1 square foot. The weight of these lamps is so light as to be measured in ounces, the heaviest being less than 4 ounces. These lamps are but 1/32" thick and have a 1/8" unlighted perimeter.

AVAILABLE LAMP BRIGHTNESS

The following chart shows lamp brightness versus lamp operating time for 60 and 400 cycles, 120 volt operation.

Freq	Lamp Color	Brightness Foot (Lamberts)	Time to 1/2 Brightness (Hours)	Time to 1/4 Brightness (Hours)
60 cps	Blue	2.4	1200	4200
	Green	5.0	3500	7500
	White	2.3	3200	7000
	Yellow	2.3	3200	7000
400 cps	Blue	14.0	600	1200
	Green	28.0	1700	3600
	White	13.0	1520	3350
	Yellow	13.0	1520	3350

The following curves show the relationship between brightness, voltage and frequency for operation of the plastic Panelescent Lamp at other conditions of voltage and frequency.



USABLE LIFE

The usable life (brightness) of the plastic Panelescent® lamp depends a great deal on the location of the lamp. If operated in an area that is reasonably dark, the lower lamp brightness necessary and consequently usable life is greatly increased. On the other hand, if the lamp is used in an area of high ambient light, its effectiveness is greatly reduced and utilization of its many unique and desirable characteristics is poor.

The shelf life of these lamps should be in excess of three years if stored in a dry location.

TEMPERATURE

For optimum life, plastic Panelescent® lamps should be operated at ambient temperatures which do not exceed 120°F. In a non-operating condition temperatures as high as 150°F will not effect life.

PRICE QUOTATIONS

Inquiries requesting price quotations should be accompanied by size and quantity requirement information.

SYLVANIA

SYLVANIA ELECTRIC PRODUCTS INC.

Subsidiary of GENERAL TELEPHONE & ELECTRONICS CORPORATION



Lighting Products Division

HEADQUARTERS

60 Boston St., Salem, Mass. 01970

Thank you for your recent letter inquiring about our Panelescent [®] Tape Lite. We are enclosing our data sheets at this time. This product can be purchased by directing an order to this office. The prices are as follows:

Tape Lite--\$1.55 per foot
Vinyl Channeling--\$.10 per foot

Finishing--\$.30 per lamp
6 Ft. Zip Cord and End Plugs--\$.25 per lamp

The terms are Net 30 Days; F.O.B. Salem, Massachusetts; minimum order \$35.00. The above prices pertain only to locations within the United States.

Less than one foot would not be considered Tape Lite and should be referred to us for pricing. Requirements for fractional dimensions will be billed at the next highest complete foot. These prices are subject to change without further notice, and are for green, blue, yellow and white lamps, operating at 60 cycles, 120 volts. The same lamps can be operated at 400 cycles. At the present time, any orders for 220 volt operation should be forwarded to this office for price and delivery.

A Tape Lite Kit is available at \$19.95 and contains 4 - 1-foot strips of Tape Lite in assorted colors: white, blue, yellow and green, 1 small, portable, transistorized, high-frequency power supply (does not include batteries), 1 red overlay, 1 printed overlay to show graphic possibilities, an applications booklet and a technical data sheet.

Thank you very much for your interest in our product. If I can be of further service to you, please do not hesitate to contact me.

Very truly yours,

SYLVANIA LIGHTING PRODUCTS

D. E. Picini
Product Sales Manager
Panelescent and Special Purpose Lamps

DEP:f
Enclosures

PNL-32

INCANDESCENT, FLUORESCENT AND MERCURY VAPOR LAMPS
PHOTOLAMPS FLUORESCENT FIXTURES STARTERS SPECIAL LIGHT SOURCES AND COMPONENTS

SERIES PTL175 PANELESCENT® TAPE-LITE



Description

Panelescent® Tape-Lite is a flexible form of an electroluminescent lamp. Electroluminescence is a means of producing light by exciting phosphors through the medium of a fluctuating electric field such as exists between the plates of a capacitor with alternating current applied.

Practical use of this unusual method of producing light is made in a design resembling a capacitor as shown in figure 1. In contrast to the need for filaments and evacuated bulbs, required in incandescent and fluorescent lamps, Tape-Lite is manufactured by dispersing special phosphors in an insulating medium. This phosphor strip is placed in sandwich fashion between two flexible plates one of aluminum foil, the other of electrically-conductive transparent material. The resulting electroluminescent sandwich is sealed between two outer layers of plastic to provide moisture-proofing. This protective seal should never be broken by cutting or piercing since lamp life would be seriously affected.

The final tape is but 1/32 inch in thickness and 1-3/4 inch in width. Due to the edge seal, the actual lighted width is approximately 1-1/8 inch. Electrical connections are made to terminals brought out from the two conductive layers or plates.

Optical Characteristics

Light Output - Panelescent® Tape-Lite is principally a decorative or marking type of light source. Its brightness, ranging from 1 to 30 foot lamberts, while ideal for such applications, is not of an order required for general illumination. Brightness varies with phosphor color, applied voltage, and frequency as shown in figures 2, 3, and 4.

Color: Panelescent® Tape-Lite is now available in blue, green, white, yellow and red. Green is the most efficient in terms of brightness while red is least efficient because the color is achieved through the use of a translucent red plastic overlay. Brightness values of the various colors are shown in figure 2.

Voltage: Reacting much as a capacitor, current and consequently brightness vary with applied voltage. An increase from 120 volts to 180 volts practically doubles the brightness of green Tape-Lite as seen in figure 3.

Frequency: Again resembling a capacitor, current and lamp brightness increase with frequency. Stepping up from 60 cps to 400 cps produces a six-fold

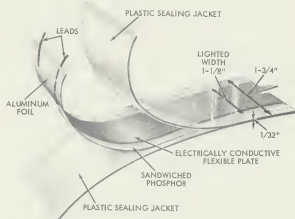


Figure 1

increase in brightness in green Tape-Lite as shown in figure 4.

Power Consumption: Tape-Lite is a low energy light source consuming only about 1/3 watt per foot at 120 volts, 60 cps and only about 1 watt at 120 volts, 400 cps. Because of the low power requirements, Tape-Lite is ideally suited to battery operation using a simple DC/AC converter.

Temperature

Tape-Lite may be operated in ambients up to 120°F and can be stored in temperatures up to 150°F.

Life

Tape-Lite, as with conventional electroluminescent lamps, is not subject to abrupt failure except by deliberate shorting of the plates. The end of life is simply that point at which the brightness finally reaches a level which is ineffective under the existing ambient light conditions. When used in relatively dark conditions the practical end of life might be 1/4-1/2 of initial lamp brightness. Where ambient light is higher, end of useful life might instead be 1/2-2/3 initial brightness.

Lamp brightness increases with lamp current, as would be expected. As a consequence life is inversely related to applied voltage and frequency.

Practical life hours for Panelscint® Tape-Lite will therefore vary from 3500 hours to more than 10,000 hours depending upon the mode of operation and the conditions of use.

Applications

Tape-Lite is available in continuous lengths up to 150 feet--or longer on special order. Electrical terminals are attached to one end. In this form Tape-Lite is flexible and can be bent or twisted to desired shapes with a radius of not less than 3 inches.

Tape-Lite can also be furnished in a special flexible plastic channel which encloses all but the lighted area. Each end is terminated with a molded cap, one of which encloses the terminals of a cord and plug assembly. This form of Tape-Lite can also be furnished in lengths of 150 feet or more. Overall thickness of channel-mounted Tape-Lite is 3/16 inches and flexibility is approximately equivalent to the unmounted product.

Tape-Lite applications are countless in the fields of decorative, display architectural and safety lighting effects. Its usefulness is greatly enhanced by its flexibility, thinness, wide choice of colors, low power requirements, absence of catastrophic failure, and uniform area-type illumination. It finds application in Military, Civil Defense as well as commercial applications.

Volts	Freq	Lamp Color	Brightness Foot-lamberts	Time to 1/2 Brightness (Hours)	Time to 1/4 Brightness (Hours)
120	60 cps	Blue	2.4	1200	4200
		Green	5.0	3500	7500
		White	2.3	3200	7000
		Yellow	2.3	3200	7000
		Red	1.0*	3500	7500
120	400 cps	Blue	14.0	600	1200
		Green	36.0	1700	3600
		White	11.0	1520	3350
		Yellow	11.0	1520	3350
		Red	4.0*	1700	3600

*Approximate -- depends on density of overlay

Figure 2

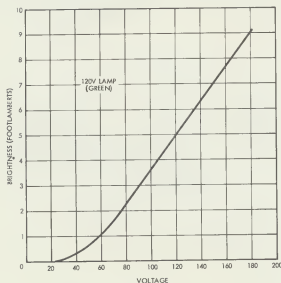


Figure 3. Brightness vs Voltage

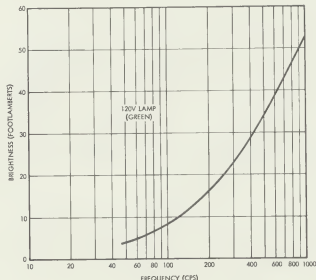


Figure 4. Brightness vs Frequency